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Frederic Reblewski

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 Boussaid, F.; Bermak, A.; Bouzerdoum, A.;
MEMS, NANO and Smart Systems, 2003. Proceedings. International Conference on
20-23 July 2003 Page(s):227 - 232
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 Ni, Y.; Guan, J.;
Solid-State Circuits, IEEE Journal of
Volume 35, Issue 7, July 2000 Page(s):1055 - 1061
Digital Object Identifier 10.1109/4.848217
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 Yang Ni; Guan, J.H.;
Solid-State Circuits Conference, 1999. ESSCIRC '99. Proceedings of the 25th European
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 Boussaid, F.; Bermak, A.; Bouzerdoum, A.;
Neural Information Processing, 2002. ICONIP '02. Proceedings of the 9th International
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Volume 3, 18-22 Nov. 2002 Page(s):1310 - 1314 vol.3
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1 A scalable, clustered SMT processor for digital signal processing



Mladen Berekovic, Sören Moch, Peter Pirsch

 June 2004 **ACM SIGARCH Computer Architecture News**, Volume 32 Issue 3

Publisher: ACM Press

 Full text available: [pdf\(356.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

A scalable, distributed, processor architecture is presented that emphasizes on high performance computing for digital signal processing applications by combining high frequency design techniques with a very high degree of parallel processing on a chip. The architecture is based on a superscalar processor model with a modified Tomasulo scheme [1], that was extended to eliminate all central control structures for the data flow and to support simultaneous instruction issue from multiple independent ...

2 CAD: Design and optimization of MOS current mode logic for parameter variations



Hassan Hassan, Mohab Anis, Mohamed Elmasry

 April 2004 **Proceedings of the 14th ACM Great Lakes symposium on VLSI**

Publisher: ACM Press

 Full text available: [pdf\(304.83 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

An automated optimization-based design strategy is proposed for single-level MOS Current Mode Logic (MCML) gates to overcome the complexities of the gate design procedure. The proposed design methodology determines the values of the design variables that achieve the minimum power dissipation point while attaining the required performance. The proposed design methodology has the advantage of speed, accuracy, and ability to include a large number of parameters in the design problem. Moreover, a fo ...

Keywords: MCML, automation, design, optimization, technology scaling, variation

3 Hardware/Software Co-testing of Embedded Memories in Complex SOCs



Bai Hong Fang, Qiang Xu, Nicola Nicolici

 November 2003 **Proceedings of the 2003 IEEE/ACM international conference on Computer-aided design**

Publisher: IEEE Computer Society

 Full text available: [pdf\(145.29 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

A novel approach for testing embedded memories in complex systems-on-a-chip (SOCs) is presented. The proposed solution aims to balance the usage of the existing on-chip resources and dedicated design for test (DFT) hardware such that the functional power constraints are not exceeded during test while trading-off the testing time against DFT area

and performance overhead. The suitability of software-centric and hardware-centric approaches for embedded memory testing is examined and to combine the advantages ...

4 Design space exploration and architectural design of HW/SW systems: Hardware support for real-time embedded multiprocessor system-on-a-chip memory management

Mohamed Shalan, Vincent J. Mooney

May 2002 **Proceedings of the tenth international symposium on Hardware/software codesign**

Publisher: ACM Press

Full text available:  pdf(533.74 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

The aggressive evolution of the semiconductor industry --- smaller process geometries, higher densities, and greater chip complexity --- has provided design engineers the means to create complex high-performance Systems-on-a-Chip (SoC) designs. Such SoC designs typically have more than one processor and huge memory, all on the same chip. Dealing with the global on-chip memory allocation/de-allocation in a dynamic yet deterministic way is an important issue for the upcoming billion transistor micro ...

Keywords: Atalanta, SoCDMMU, System-on-a-Chip, dynamic memory management, embedded systems, real-time operating systems., real-time systems, two-level memory management

5 A reconfigurable multi-function computing cache architecture

Hue-Sung Kim, Arun K. Somani, Akhilesh Tyagi

February 2000 **Proceedings of the 2000 ACM/SIGDA eighth international symposium on Field programmable gate arrays**

Publisher: ACM Press

Full text available:  pdf(992.08 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


A considerable portion of a chip is dedicated to a cache memory in a modern microprocessor chip. However, some applications may not actively need all the cache storage, especially the computing bandwidth limited applications. Instead, such applications may be able to use some additional computing resources. If the unused portion of the cache could serve these computation needs, the on-chip resources would be utilized more efficiently. This presents an opportunity to explore the reconfigurability ...

6 Microservers: a new memory semantics for massively parallel computing

Jay B. Brockman, Peter M. Kogge, Thomas L. Sterling, Vincent W. Freeh, Shannon K. Kuntz

May 1999 **Proceedings of the 13th international conference on Supercomputing**

Publisher: ACM Press

Full text available:  pdf(1.40 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


Keywords: massively parallel, microserver, processing-in-memory

7 Memory bandwidth limitations of future microprocessors

Doug Burger, James R. Goodman, Alain Kägi

May 1996 **ACM SIGARCH Computer Architecture News , Proceedings of the 23rd annual international symposium on Computer architecture ISCA '96**, Volume 24 Issue 2

Publisher: ACM Press

Full text available:  pdf(1.60 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper makes the case that pin bandwidth will be a critical consideration for future microprocessors. We show that many of the techniques used to tolerate growing memory latencies do so at the expense of increased bandwidth requirements. Using a decomposition of execution time, we show that for modern processors that employ aggressive memory latency tolerance techniques, wasted cycles due to insufficient bandwidth generally exceed those due to raw memory latencies. Given the importance of ma ...

8 A laboratory for teaching parallel computing on parallel structures



Lan Jin, Lan Yang

March 1995 **ACM SIGCSE Bulletin , Proceedings of the twenty-sixth SIGCSE technical symposium on Computer science education SIGCSE '95**, Volume 27 Issue 1

Publisher: ACM Press

Full text available: [pdf\(541.68 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

For the effective use of a laboratory for teaching parallel processing, it is desirable to have parallel systems that can implement various parallel structures at hardware or software level. Such systems developed in our laboratories are described in this paper. They are a multi-computer with reconfiguration and the PVM (Parallel Virtual Machine) with structural implementation. The paper proposes a methodology and several classes of problems for teaching message-passing programming on paral ...

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